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Use of Nutritional Supplements for Cows on U.S. Beef Cow-calf Operations

Feed is a major proportion of the total cost of beef cattle production. On most operations, the mainstay of a beef cow's diet is some type of grazed or harvested forage (e.g., hay/silage/pasture). As a general rule, forage with a crude protein content of 7 percent or more is adequate to maintain normal body functions in adult cattle. Protein and energy supplements are often provided to beef cows to meet the increased nutritional demands of pregnancy and lactation, particularly when the forage is of low quality. Cows that are nursing calves require the highest levels of protein and energy.

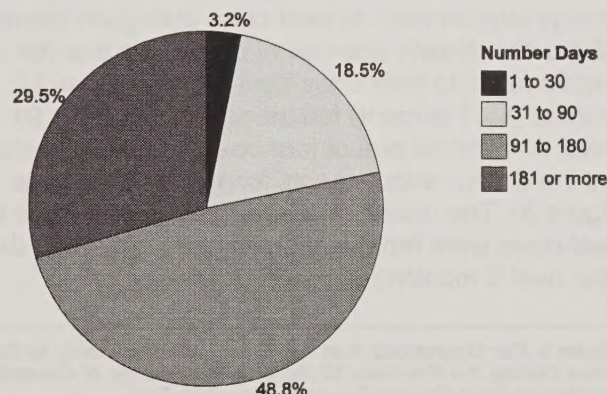
The U.S. Department of Agriculture's National Animal Health Monitoring System (NAHMS) conducted the Beef 2007–08 study, which focused on beef cow-calf health and management practices in 24 States.* These States represented 79.6 percent of U.S. operations with beef cows and 87.8 percent of U.S. beef cows. As part of the Beef 2007–08 study, producers were asked about the use of three types of nutritional supplements for beef cows: protein, energy, and roughage.

Protein supplements

Protein is one of the most expensive ingredients in a feed ration. Many different types of protein supplements can be used effectively in beef cows. Several common supplements are: corn gluten feed, distillers grains, cottonseed meal, soybean meal, and urea. Urea is an inexpensive option for protein supplementation, but it must be used carefully since it is toxic if overfed. In addition, the efficient use of nonprotein nitrogen (urea) requires some readily available carbohydrate which may be lacking in some rations. Commercial products such as liquid supplements and protein blocks are also available for protein supplementation. These may include natural protein or nonprotein nitrogen.

About three of four operations (74.7 percent) fed protein supplements to beef cows during the previous 12 months. These operations were asked about the number of days that protein supplements were given, and about the primary ingredient in the supplement. Nearly one-half of operations (48.8 percent) that fed protein supplements to beef cows during the previous 12 months fed the supplements for 91 to 180 days. About one-third of operations (29.5 percent) fed protein supplements for 181 or more days (figure 1). The operation average number of days that beef cows were fed the supplement was 172.7 days (almost 6 months).

Figure 1. For Operations that Fed Protein Supplements to Beef Cows During the Previous 12 Months, Percentage of Operations by Number of Days Protein Supplements were Fed



Plant protein (soybean meal, cottonseed meal, etc.) was the primary protein supplement ingredient used on 68.5 percent of operations and on the majority of operations in each region. Overall, 14.6 percent of operations used urea as the primary protein supplement, and 16.9 percent used "other" protein source for supplementation (figure 2). In most cases, "other" protein source referred to commercial products such as liquids or blocks in which the specific ingredients were not reported; therefore, the products could not be classified as plant or nonprotein nitrogen based.

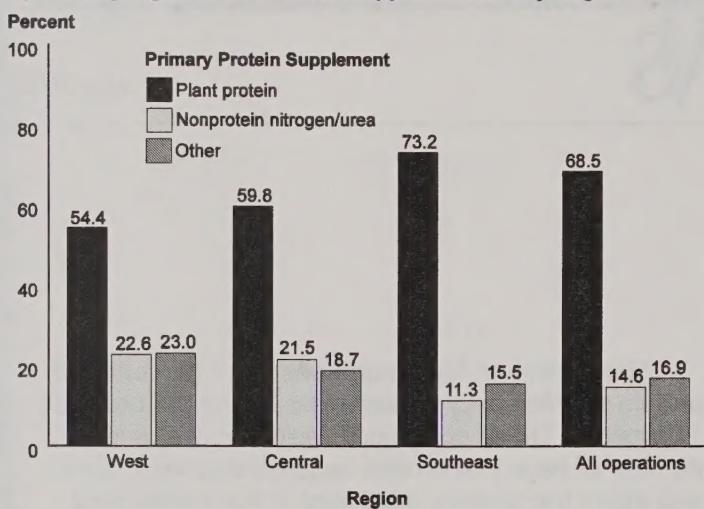
* States/Regions:

West: California, Colorado, Idaho, Montana, New Mexico, Oregon, Wyoming

Central: Iowa, Kansas, Missouri, Nebraska, North Dakota, South Dakota

Southeast: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, Texas, Virginia.

Figure 2. For Operations that Fed Protein Supplements to Beef Cows During the Previous 12 Months, Percentage of Operations by Primary Ingredient in Protein Supplement and by Region

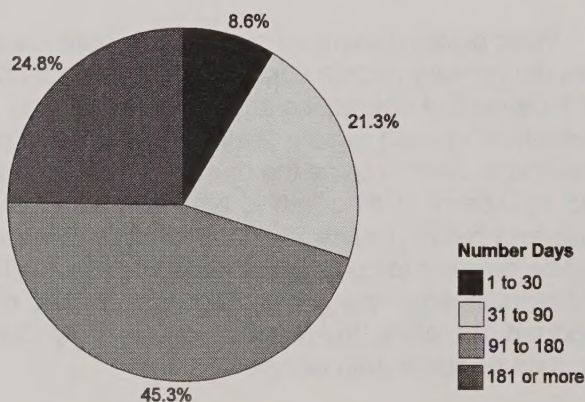


Energy supplements

Energy supplements are fed to supply additional calories to beef cows when forage does not provide an adequate amount of energy. Many common protein supplements can also serve as energy supplements. The energy requirements of adult beef cows vary over the production cycle. Lactation is usually the time of highest demand for both protein and energy.

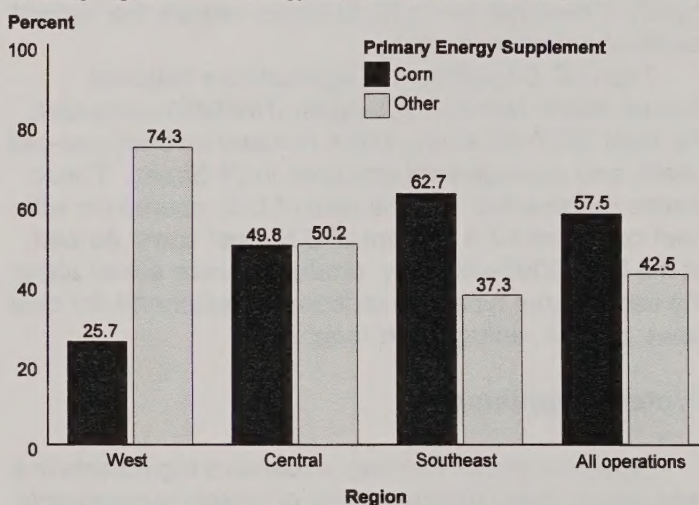
About one-half of operations (51.0 percent) fed energy supplements to beef cows during the previous 12 months. Nearly one-half of operations that fed energy supplements to beef cows during the previous 12 months (45.3 percent) fed the supplements for 91 to 180 days, and almost one of four operations (24.8 percent) fed the energy supplements for 181 or more days (figure 3). The operation average number of days that beef cows were fed the supplements was 162.2 days (just over 5 months).

Figure 3. For Operations that Fed Energy Supplements to Beef Cows During the Previous 12 Months, Percentage of Operations by Number of Days Energy Supplements were Fed



Corn contains a large amount of starch and has traditionally been an inexpensive choice for energy supplementation. Caution should be exercised when using corn as an energy supplement, however, because forage intake will decrease if too much corn is fed. Corn was the primary energy supplement ingredient used on 57.5 percent of operations that fed energy supplements. For the 42.5 percent of operations that used energy supplements other than corn, common supplements were molasses, commercial products (e.g., blocks, pellets, liquids), corn byproducts (e.g., distillers grains), and oil seeds and meals (e.g., soybean or cottonseed). In the West region, energy supplements with a main ingredient other than corn predominated and were used on 74.3 percent of operations that fed energy supplements (figure 4). Shorter growing seasons in some Western states and the cost of transporting corn from the Midwest may make corn less economical in the West region.

Figure 4. For Operations that Fed Energy Supplements to Beef Cows During the Previous 12 Months, Percentage of Operations by Primary Ingredient in Energy Supplement, and by Region

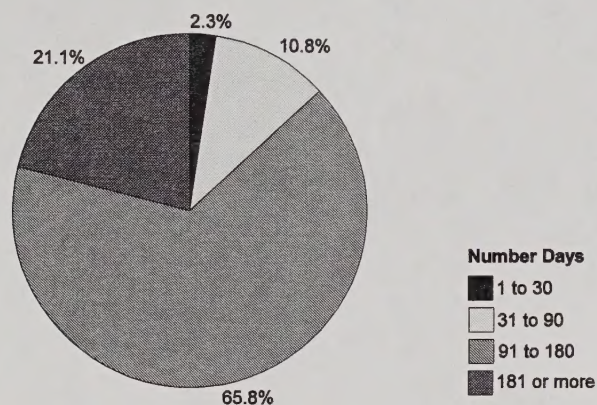


Roughage supplements

Supplemental roughage, such as harvested hay or corn stalks, is often provided for beef cows, particularly during winter months.

Nearly all operations (97.1 percent) used roughage supplements during the previous 12 months. Most operations that fed roughage during the previous 12 months fed the supplement for 91 to 180 days (65.8 percent). Only 2.3 percent of operations that fed roughage supplements to beef cows fed the supplements for less than 31 days (figure 5). A higher percentage of operations in the West region (8.3 percent) fed roughage supplements for 1 to 30 days compared with operations in the Central region (0.1 percent). The operation average number of days that beef cows were fed the supplement was 158.5 days (about 5 months). Producers were not asked about the primary ingredient in the roughage supplement.

Figure 5. For Operations that Fed Roughage Supplements to Beef Cows During the Previous 12 Months, Percentage of Operations by Number of Days that Roughage Supplements were Fed



Summary

Resources, such as local university extension agents¹ or veterinarians, are available to assist beef producers in designing an optimum feeding program. Appropriate supplements for beef cows should be selected based on the stage of production and the quality of the forage. Optimization of feed rations and efficient use of supplements can result in greater profitability for the beef producer.

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¹ University extension office Web sites that have information on beef cattle nutrition: http://edis.ifas.ufl.edu/topic_beef_cattle_nutrition, <http://pubs.caes.uga.edu/caespubs/pubs/PDF/B1322.pdf>



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1. The first part of the book is devoted to a general survey of the history of the subject. It begins with a brief account of the early attempts to cultivate the soil, and then proceeds to a more detailed description of the various methods which have been employed from time to time. The author then discusses the influence of climate and soil upon the growth of the plant, and finally touches upon the question of the proper management of the land.

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